

REPORT ON MACHINERY.

No. 844

No. in Survey held at *Sunderland*
Reg. Book.

Date, first Survey *April 1st/82* Last Survey *Feb 4th 1883*

on the *S.S. Abington*

Master *M. C. Otter*

Built at *Sunderland*

When built *1882*

Engines made at *Sunderland*

By whom made *Jm Doreford & Sons* when made *1882*

Boilers made at *Sunderland*

By whom made *Jm Doreford & Sons* when made *1882*

Registered Horse Power *200* Owners *Renton & Co*

Port belonging to *Glasgow*

ENGINES, &c.—

Description of Engines *Vertical, Compound, surface condensing, direct acting.*

Diameter of Cylinders *34" & 68"* Length of Stroke *45"* No. of Rev. per minute *60* Point of Cut off, High Pressure *1/2 stroke* Low Pressure *1/2 stroke*

Diameter of Screw shaft *11 3/4"* Diameter of Tunnel shaft *11 1/4"* Diameter of Crank shaft journals *11 3/4"* Diameter of Crank pin *11 3/4"* size of Crank webs *13 1/2" x 8 1/4"*

Diameter of screw *15-10"* Pitch of screw *1 1/2-6"* No. of blades *4* state whether moveable *yes* total surface *40 sq ft*

No. of Feed pumps *2* diameter of ditto *3 3/4"* Stroke *28"* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *2* diameter of ditto *3 3/4"* Stroke *28"* Can one be overhauled while the other is at work *yes*

Where do they pump from *Fore tanks, engine room, after tanks and after wells*

No. of Donkey Engines *2* Size of Pumps *4 x 8"* Where do they pump from *Fore tanks, engine room*

after tanks, after wells, sea and condenser

Are all the bilge suction pipes fitted with roses *yes* Are the roses always accessible *yes* Are the sluices on Engine room bulkheads always accessible *yes*

No. of bilge injections *one* and sizes *4"* Are they connected to condenser, or to circulating pump *Circulating pump*

How are the pumps worked *By levers on after engine*

Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *Both*

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *yes* Are the discharge pipes above or below the deep water line *above*

Are they each fitted with a discharge valve always accessible on the plating of the vessel *yes* Are the blow off cocks fitted with a spigot and brass covering plate *yes*

What pipes are carried through the bunkers *none* How are they protected *—*

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times *yes*

Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges *yes*

When were stern tube, propeller, screw shaft, and all connections examined in dry dock *new vessel*

Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *top platform of engine room*

OILERS, &c.—

Number of Boilers *One* Description *Cylindrical, multitubular, double ended.*

Working Pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* Date of test *19-12-82*

Description of superheating apparatus or steam chest *Horizontal dome*

Can each boiler be worked separately *one boiler* Can the superheater be shut off and the boiler worked separately *No superheater*

No. of square feet of fire grate surface in each boiler *90-148 sq ft* Description of safety valves *Direct spring valves*

No. to each boiler *2* area of each valve *23.76 sq* Are they fitted with easing gear *yes*

No. of safety valves to superheater *—* area of each valve *—* are they fitted with easing gear *—*

Smallest distance between boilers and bunkers or woodwork *3 feet*

Diameter of boilers *13-9"* Length of boilers *14-0"* description of riveting of shell long. seams *treble lap* circum. seams *Double lap*

Thickness of shell plates *25" / 32"* diameter of rivet holes *1 1/8"* whether punched or drilled *drilled* pitch of rivets *3-885"*

Lap of plating *4"* per centage of strength of longitudinal joint *42.6 R 48.82* working pressure of shell by rules *82.5*

Size of manholes in shell *16 x 12"* size of compensating rings *4 x 1"*

No. of Furnaces in each boiler *6* outside diameter *3-1"* length, top *6-6"* bottom *5-4"*

Thickness of plates *1/2"* description of joint *Double butt straps* rings are fitted *yes* greatest length between rings *5-4"*

Working pressure of furnace by the rules *105 lbs*

Combustion chamber plating, thickness, sides *1/2"* back *tube plate* top *1/2"*

Pitch of stays to ditto sides *8 x 9 1/4"* back *tube plate* top *9 1/4 x 9 1/4"*

If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *90 lbs*

Diameter of stays at smallest part *2 1/4"* working pressure of ditto by rules *99 lbs*

End plates in steam space, thickness *1 1/2"* pitch of stays to ditto *18 x 15 1/2"* how stays are secured *double nuts*

Working pressure by rules *85* diameter of stays at smallest part *2 1/4"* working pressure by rules *85 lbs*

Front plates at bottom, thickness *3/4"* Back plates, thickness *none* greatest pitch of stays *—* working pressure by rules *—*

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Diameter of tubes $3\frac{1}{4}$ " pitch of tubes $4\frac{1}{2}$ " thickness of tube plates, front $\frac{3}{4}$ " back $\frac{3}{4}$ "
 How stayed stay tubes pitch of stays 9×9 " width of water spaces $1\frac{1}{4}$ " 5 "
 Diameter of ~~Superheater or~~ Steam chest $3\frac{1}{2}$ " length $9\frac{1}{2}$ "
 Thickness of plates $\frac{1}{16}$ " description of longitudinal joint lap double diameter of rivet holes $\frac{3}{4}$ " pitch of rivets $2\frac{3}{4}$ "
 Working pressure of shell by rules 163 lbs Diameter of flue thickness of plates
 If stiffened with rings distance between rings Working pressure by rules
 End plates of ~~superheater or~~ steam chest; thickness $5\frac{1}{8}$ " How stayed four stays 2 " diam.
~~Superheater or~~ steam chest; how connected to boiler By a flanged neck $18 \times 14 \times \frac{3}{4}$ "
 DONKEY BOILER— Description Vertical with 3 cross tubes
 Made at Sunderland By whom made Messrs Welford Bros when made Tested 2-12-82
 Where fixed Stockhold working pressure 60 Tested by hydraulic pressure to 120 No. of Certificate 586
 Fire grate area $21\frac{1}{2}$ sq ft Description of safety valves Spring No. of safety valves 2 area of each 4.07
 If fitted with easing gear yes If steam from main boilers can enter the donkey boiler no
 Diameter of donkey boiler $6\frac{1}{2}$ " length $12\frac{1}{2}$ " description of riveting Longitudinal seams double riveted
 thickness of shell plates $\frac{3}{8}$ " diameter of rivet holes $\frac{3}{4}$ " whether punched or drilled punched
 pitch of rivets 3 " lap of plating $3\frac{3}{4}$ " per centage of strength of joint $\frac{4}{5}$ %
 thickness of crown plates $\frac{1}{16}$ " stayed by five stays $1\frac{1}{2}$ " diam. uptake & dished to a radius of $3\frac{1}{2}$ "
 Diameter of furnace, top $5\frac{1}{2}$ " bottom $5\frac{1}{2}$ " length of furnace $4\frac{1}{2}$ "
 thickness of plates $\frac{1}{2}$ " description of joint lap single riveted
 thickness of furnace crown plates $\frac{1}{16}$ " stayed by five stays $1\frac{1}{2}$ " diam. uptake & dished to a radius of
 Working pressure of shell by rules 60 lbs working pressure of furnace by rules 64 lbs
 diameter of uptake 15 " thickness of plates $\frac{3}{8}$ " thickness of water tubes $\frac{1}{16}$ "

The foregoing is a correct description,
 William Dwyer & Co. Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The machinery of this vessel has been constructed under special survey
 The workmanship and material are good and efficient and the engine
 when tried under steam found satisfactory. In my opinion the machinery
 of this vessel is eligible for the notification of Lloyd's R.C. 2.83

It is submitted that this
 vessel is eligible to have the
 notification + L.R. 2.83
 recorded.
 D.F. 19/2/83

The amount of Entry Fee .. £ 3:0:0 received by me,
 Special .. £ 30:0:0
 Certificate (if required) .. £
 To be sent as per margin. 16 Feb 1883
 (Travelling Expenses, if any, £)

Committee's Minute Tuesday, 20th February 1883.

Robert Salmon
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping